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COMPLETE SPECIFICATION.

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[Communicated from abroad by DAVID GENESE, of Baltimore, Maryland, United States of America, Dental Surgeon.]

Improvements relating to Artificial Teeth.

I HENRY HARRIS LAKE of the firm of Haseltine Lake & Co. Patent Agents, Southampton Buildings, in the County of Middlesex do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to the manufacture of artificial teeth and the method of mounting them upon the plate, and is especially applicable to that class of work in which the base or denture is composed wholly of metal.

The object of this invention is to provide improvements in the construction of the tooth and in the attachment thereto of the metal fastening by which it is soldered to  
10 the plate, whereby expansion and contraction of both metal and porcelain may take place independently of each other and whereby also, fracture of the porcelain in any one or more of the teeth of the denture after the same is finished, shall be wholly obviated.

The invention consists in the several novel features of construction and near  
15 combination of parts hereinafter set forth.

In the accompanying drawing,

Figure 1 is an elevation of an incisor tooth embodying this invention, the view being taken from the labial surface.

Figure 2 is a plan view of the grinding surface of a molar tooth showing the same  
20 invention.

Figure 3 is a detail view of the metal fastening and of the tooth shown in Figure 2 the same part being separated for the purpose of illustration.

Figure 4 is a transverse section of a tooth showing a modified construction.

Figure 5 is a view of an incisor tooth showing a slight modification in construction,  
25 adapted to the form of the tooth.

Figure 6 is a view of a tooth having its end beveled off.

Figure 7 is a view of a slightly modified form of metal backing.

Figure 8 is a view in perspective showing the manner of attaching the backing shown in Figure 7.

[Price 8d.]



*Lake's Improvements relating to Artificial Teeth.*

Figure 9 is a central section of Figure 8 showing the bent end of the metal embedded in the tooth.

Heretofore in the manufacture of dentures, much annoyance has been experienced by reason of the fracture of the porcelain, in one or more teeth after the plate is finished and the patient has begun to wear it. 5

This accident may be caused by the sudden meeting of two occluding teeth especially where one has received a slight flaw, or it may arise from other causes, such as the strain caused by the capillary action of fluids entering the minute spaces between the teeth and the backing or between the former and the rubber plate.

One cause of this defect is unquestionably the common practice of inserting the metal pins, by which the teeth are attached to the plate, in the centre of the tooth or nearly so, thereby giving the latter a constant leverage from both ends, making the base of the tooth the fulcrum. 10

The materials employed having no affinity each supports the other by the bulk of material, and the parts being united by a method causing constant contraction each upon the other the unity of the teeth and the base is broken up, and the whole reliance must be placed upon the small pins or wires which hold by the resistance of their wet heads only. 15

To obviate these defects, I construct the teeth and the metal fastenings in the following manner 20

In the drawing the reference numeral 1 denotes the body of the tooth in which is formed a cylindrical cavity or opening 2, extending from the base to the grinding surface. A channel 3 is cut from the labial surface of the tooth toward the centre, entering the cylindrical opening 2. The numeral 4 denotes the metal backing of the tooth, which lines the cavity 2, the double thickness of the metal being carried through the channel 3. and the ends being folded over upon the back of the tooth as shown at 5. 25

This construction, as will readily appear, permits the free and independent expansion of both metal and porcelain.

It also gives a spring space running to the back of the tooth embracing and protecting the part which receives the greatest pressure in mastication, at the same time it unites the tooth to the plate by a large central hold-fast, beside the ordinary backing which is already burned to the tooth and will therefore not shrink or expand again like the ordinary backing riveted to the pin teeth. 30

I may employ a double cylindrical cavity 2<sup>a</sup> as shown in Figure 4 and place the metal therein in a similar manner, the only difference being in the duplication of the cavity 2, and channel 3. 35

In the thin elongated incisor teeth, where the form of the tooth is such as to prevent the formation of a central opening of any appreciable diameter, I flatten the tubular part 6 of the backing and mold the tooth thereon, as seen in Figure 5. By beveling off the base of the tooth, as shown in Figure 6 the attachment of the backing is not disturbed or weakened, and an equally extensive point of attachment to the plate is afforded. 40

I may substitute for the form of backing heretofore described that shown in Figure 7 consisting of a metal plate 8 having one end 9 turned over at an angle and perforated at 10. The tooth is molded upon this backing, the bent end 9, being near the point of the tooth. The paste of which the tooth is formed fills the perforation 10 and holds the backing in place, the subsequent firing completing the union of the parts. 45

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed as communicated to me by my foreign correspondent I declare that what I claim is. 50

First. A tooth for artificial dentures, the same having one or more vertical cavities or openings extended from the roof to the grinding surface, and a channel in rear of the opening, substantially as described.

Second. A tooth for artificial dentures, having one or more vertical cavities or openings extending entirely through the body of the tooth, and a channel in rear 55



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thereof extending from said cavity to the labial surface, in combination with a metal backing lining said cavity or cavities passing through the channel and covering the rearward surface of the tooth substantially as described.

5 Third. A tooth for artificial dentures, having a central cylindrical vertical cavity, and a channel in rear thereof cut from the labial surface of the tooth to said cavity, in combination with a metal backing plate, lining said cavity, passing through the channel and having its ends folded over in opposite directions upon the back of the tooth, said metal being burned upon the porcelain, substantially as described.

10 Fourth. The combination with the tooth 1, having a vertical cavity 2 and channels 3 of a metal backing 4 lining the cavity passing through the channel 3, and having its ends 5 folded down laterally in opposite directions, upon the rear surface of the tooth, substantially as described.

Fifth. A porcelain tooth having a platina backing secured thereon by burning and provided with one or more vertical cylindrical openings, substantially as described.

15 Sixth. An artificial tooth molded upon a metal backing having a central flattened strip or rib lying in the body of the tooth substantially as described.

Seventh. An artificial tooth having a metal backing provided with a bent and perforated end which lies in the body of the tooth and the perforation of which is filled by the material forming the tooth, substantially as described.

20 Dated this 28th day of December 1887.

HASELTINE, LAKE & Co.,  
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Agents for the Applicant.

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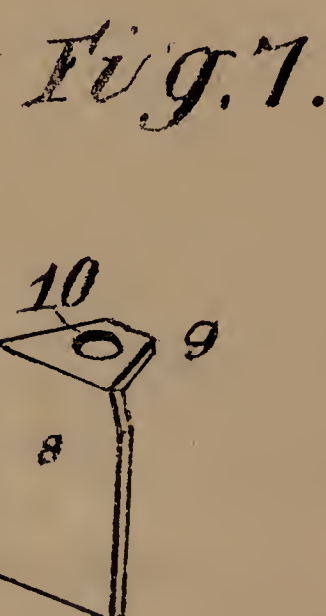
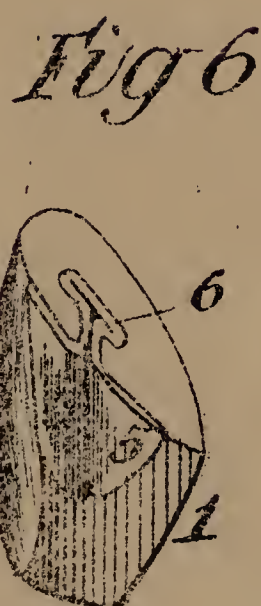
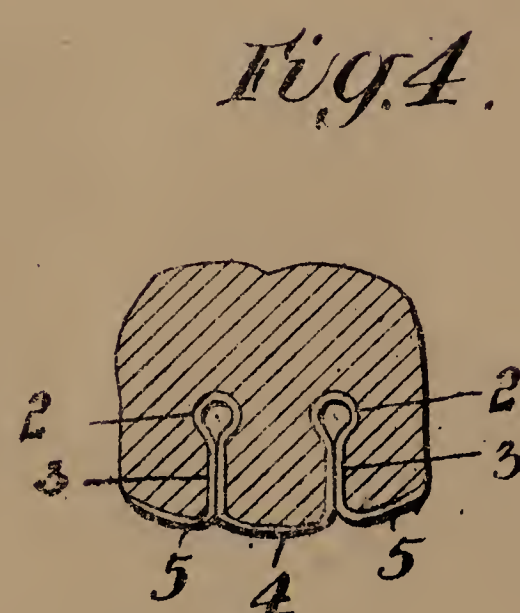
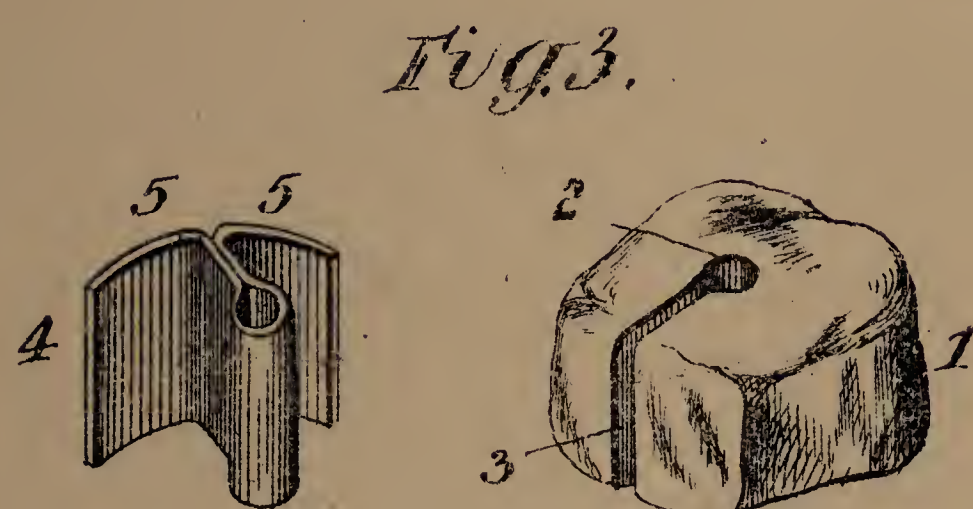
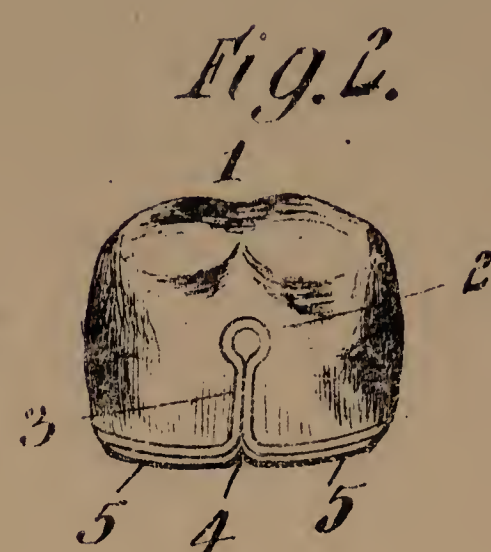
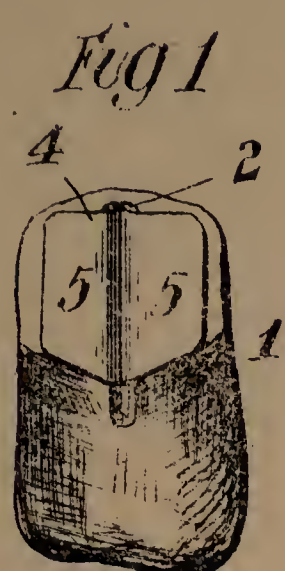
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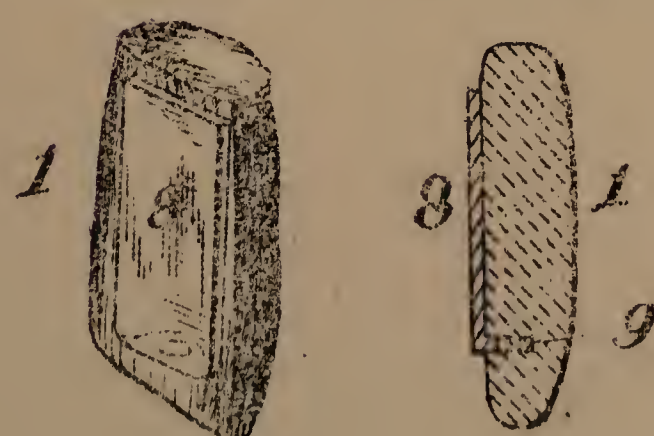








*Fig. 8. Fig. 9.*



[This Drawing is a reproduction of the Original on a reduced scale.]

